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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,499	06/21/2002	Tadahiro Ohmi	FUK-89	7630
22855	7590	04/12/2005	EXAMINER	
RANDALL J. KNUTH P.C. 4921 DESOTO DRIVE FORT WAYNE, IN 46815			ARBES, CARL J	
			ART UNIT	PAPER NUMBER

3729

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/049,499	OHMI ET AL.	
	Examiner	Art Unit	
	C. J. Arbes	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>here to</u> . | 6) <input type="checkbox"/> Other: _____ |

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The Response to the Office's Restriction requirement, which restriction was mailed on or about 15 December 2004 has been carefully reviewed but has not overcome the Restriction. The Office restriction has been and continues to be correct and is proper. In view of this finding and further in view of Applicants' response thereto the Restriction is hereby **made Final**. Applicants therefore are required to cancel all non-elected claims or take other appropriate action.

An Office Action on the merits of Claims 1-5 now follows.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 5 are held not to particularly point or distinctly the invention under 35 U.S.C. 112 (2nd Para) inasmuch as is said Claim 4 in line 5 applicants recite ...a through hole conduct, or.... Where they intentionally replaced the term "and" with the word "or. It is far from clear what Applicants are intending to claim or wish to have coverage on in this claim 4. Moreover in this same line what is the significance of the term "conduct" Is this word a misspelling of the term "conductor"? As applied to Claim 5 a dimensional analysis must be carefully explained. Why do Applicants use dimensional unit such as "Kg" in their claim when the accurate language should have been "Dyne" or "Kilogram force" per unit area?

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by

Makihara et al (Pat No 5,683,529; hereinafter Makihara et al. The document speaks for itself. Moreover the teaching is further explained hereinbelow.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makihara et al

Makihara et al teach a process for producing a multi-layered circuit board including the steps of preparing green sheets of Aluminum Nitride, forming on the green sheets conductive patterns of a conductor paste, laminating the green sheets with conductor patterns formed thereon to form a lamination and firing the lamination in a container made of Boron Nitride and in a pressurized Nitrogen gas atmosphere . (Cf. Abstract and in Column 1). The reference also teaches that one can provide through holes which are filled with metallic paste (Cf..Col 4). Also in column 4 this document clearly indicates *inter alia* in lines 33-40 that the laminations were degreased in a Nitrogen gas flow at 600 degrees Celsius for 4 hours to remove organic binder. In indeed the teaching fails to expressly disclose that the gas e.g. that the Nitrogen at 600 degrees Celsius is dry then a reasonable Patent Examiner or a POSITA would have

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found it to be obvious to conclude that the gas is a dried gas and so it is held. As applied to claim 5 it is held to have been within the ordinary skill of a POSITA to provide 10-15 kg/cm (2) for the pressure. As applied to Claim 4 the wording of this claim merely requires a plurality of wiring boards with "conduct" within through holes or multilayering by pressurizing/heating a plurality of wiring boards and using sprayed gas on a surface of a wiring board. If Makihara does not expressly teach spraying the wiring board with a gas in order to eliminate impurities thereon (which it is believed that Makihara et al do teach) then it would be obvious for a POSITA to so spray the surfaces of the wiring boards given the evidence by Makihara et al. What other purpose would this teaching be for when they provide a Nitrogen gas flow at 600 C?

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. J. Arbes whose telephone number is 571-272-4563. The examiner can normally be reached on M, T, R and F from 8 until 6

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, P. Vo, can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



C. J. Arbes

Primary Examiner

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